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TABLE OF CONTENTS.

PAGE.

EDITORIAL ARTICLES:—The Flowering Dogwood. (With figure.)—The Treatment of Trees in Drought 425
California Forests and Irrigation . . . . . *Charles H. Shinn.* 426
Earliness from Unripe Seed . . . . . *Professor E. S. Goff.* 427
The Cactus in Garden Art 427

NEW OR LITTLE KNOWN PLANTS:—Prunus Allegheniensis. (With figure.) *Professor Thomas C. Porter.* 428
Lilium Henryi . . . . . *W.* 428
New Orchids . . . . . *R. A. Rolfe.* 428

FOREIGN CORRESPONDENCE:—London Letter . . . . . *W. Watson.* 428

CULTURAL DEPARTMENT:—Preparing for Easter Flowers . . . . . *James Dean.* 430
Ferns of Singular Form . . . . . *W. H. Taplin.* 432
Notes on Shrubs . . . . . *J.* 432
A Few Annuals . . . . . *G.* 433
Growing Pears . . . . . *E. P. Powell.* 433

CORRESPONDENCE:—Forests and Scenery in New Hampshire . . . . *J. B. Harrison.* 433
Wheat and Rye Hybrids . . . . . *J. G. Jack.* 434
A Mysterious Conifer . . . . . *Dr. Carl Bolle.* 434
Tree Peonies . . . . . *Auguste Dessert.* 435
The Pepo of Peru . . . . . *E. Lewis Sturtevant, M. D.* 435

RECENT PUBLICATIONS 435

NOTES 435

ILLUSTRATIONS:—Prunus Allegheniensis, Fig. 53 429
The Flowering Dogwood, Fig. 54 431

The Flowering Dogwood.

THE trees called in popular language Flowering Dogwoods give a peculiar charm to the forests of North America. There are two of these trees, and their counterpart is not found in any other part of the world. In early spring one of them enlivens the deciduous forests of south-eastern America, and the other lights up the gloomy Pines and Firs of the far north-west.

We will glance first at the floral structure to which these plants owe their peculiar beauty. The flowers of the Cornel are individually small, and green or greenish white or white in color. They are arranged in some species in close heads, and in others in open, flat, spreading cymes. The last is the more common arrangement, and the flower-clusters of some of the American species in which the flowers are grouped in this fashion are very beautiful, especially those of *Cornus circinata* and of *Cornus alternifolia*, the former a good-sized shrub, and the latter a small tree or tree-like shrub, of the north Atlantic forests. In those American species in which the flowers are placed in a close head the flower-cluster is surrounded by four or five large leaf-like bracts which enclose it in the bud. These open before the flowers expand and soon begin to enlarge. At this time they are of a rather dirty greenish white color and not more than a quarter of an inch long. They grow rapidly, and at the end of ten days or two weeks are one and a half or two inches long on the eastern tree, or sometimes twice that length on the Pacific coast species, and pure snowy white. To these large showy bracts or floral leaves the Flowering Dogwoods owe their name, and not to the flowers, which are very small, of a pale greenish color, and quite inconspicuous.

The fact that the vernal beauty of these trees is due to leaves and not to flowers lengthens the time of what is popularly supposed to be their flowering period; for the floral leaves have already grown to more than half their size before the true flowers open, and their time of greatest beauty does not come until after the flowers have fallen. The flowers and the floral leaves open and fade before the trees put forth their true leaves, so that they appear in flower like one mass of dazzling white.

The Cornels with showy floral leaves are confined to the New World, the group being represented by the two Flowering Dogwood-trees, one in the east and the other in the west, and by the pretty little herbaceous Bunch-berry, a familiar flower of our northern woods, which it carpets in spring with its large white bracts, and cheers in the late autumn by its large clusters of brilliant scarlet fruit, and by another species resembling this last, and peculiar to Alaska and the far northern parts of the continent. These are all that have come down to us from a very peculiar group of plants which, in earlier times, were more widely scattered over the earth's surface than they are now. For the ancestors of our Flowering Dogwoods occurred in Europe, where, however, their descendants have been unable to obtain a foothold, as well as in America.

As ornamental trees, the Flowering Dogwoods, especially the eastern species, are not easily surpassed. This tree, to which botanists have given the name of *Cornus florida*, is a low, round-headed plant, with spreading branches and a straight, usually slender, trunk. Under favorable conditions it attains sometimes in the south a height of forty feet, with a trunk often a foot or a foot and a half in diameter. The leaves are ample in size, dark, lustrous green on the upper surface, the lower surface covered with pale glaucous bloom. They turn in autumn to a crimson color, which finds its only equal in brilliancy among American trees in those of the Sour Gum and of the Liquid-ambar. The effects of the color of the tree at this time of the year are heightened by the contrast between the darker hues of the upper surface with the paler shades of the lower. The fruit is an oval scarlet drupe half an inch long, borne in dense spherical heads. It ripens in the late autumn, and then adds much to the beauty of the trees when birds permit it to escape them. The claims, therefore, of the Flowering Dogwood as an ornamental tree are its hardiness, its size and habit, the beauty and durability of its inflorescence, its handsome foliage and fruit and the brilliancy of its autumn foliage. It grows from southern New England and Minnesota to Florida and eastern Texas, reappearing on the mountains of north-eastern Mexico. This tree is not common at the north, and east of the Hudson River it never reaches any great size. In the middle states, however, and in the south and south-western part of the region which it occupies, it is one of the most common inhabitants of the forests of deciduous-leaved trees, affording the most conspicuous feature in the landscape, and lighting up the borders of forests and fields with masses of dazzling white.

This little tree produces wood which is not exceeded in strength and in the toughness and closeness of its grain by that of many other American trees. It is valued in turnery, for the hubs of small wheels, for the bearings of machinery, and even for wood-engraving. The bitter properties of the bark make it useful as a tonic and give it a place in the materia medica.

The appearance of this tree when in flower is shown in our illustration on page 431. It represents a fine specimen growing in the country place of Mr. A. L. Barber, at Grimes' Hill, Staten Island, and is from a photograph by J. Loeffler, Tompkinsville, New York.

The Pacific Coast Flowering Dogwood, the *Cornus Nuttallii* of botanists, is in some respects a finer tree than its better known Atlantic relative. It grows taller, and it is not unusual to find individuals among the great Fir-trees near the shores of Puget Sound, a region remarkable for its great trees, sixty feet or more in height. The flower-bracts are nearly twice as large, and therefore more conspicuous. The leaves, however, do not assume the brilliant autumn tints of those of the eastern tree, and its tall, slender mode of growth makes it less desirable as a cultivated plant. Apparently the Pacific Coast Dogwood is not an easy plant to cultivate outside the region where it grows naturally. It was first introduced into gardens many years ago, but we cannot remember to have ever seen a plant of any size in any garden, and all recent attempts to cultivate it have proved unsuccessful. Other plants of the same region are, however, perfectly at home

in the gardens of Europe, and a few of them, like the Vine Maple, do fairly well in those of this country. It is possible to hope, therefore, that when the secret of the successful method of cultivating this western Dogwood has been discovered, an ornamental tree of the first class will be given to our plantations.

This species grows from British Columbia to the mountains of southern California. It attains its greatest size in western Oregon and Washington Territory, and the traveler through the great Fir-forests of that region at the time of year when the Dogwoods are in flower will never forget the impression upon his imagination which their appearance creates.

The Treatment of Trees in Drought.

WHENEVER there is a severe drought in New England the newspapers tell us that the great Elms in various towns have died, and that the street officers are about to cut them down. But it takes more than one summer's drought to kill an Elm that was growing vigorously when the dry weather began. Drought often kills trees the first summer after they are planted, and when they are dead beyond doubt they might as well be cut down or dug up to make room for others. But if a tree that has been for some years firmly rooted is so afflicted and starved by drought as to lose all its leaves in midsummer, that is not a sufficient reason for cutting it down. It may die the following year if nothing is done for its relief, but the rains of the coming winter and spring would probably revive it. A tree which is supposed to be killed by drought should never be cut down before the opening of the summer of the next year.

But a tree which gives signs of perishing by drought ought to receive sympathy and assistance. The wilting, turning yellow and falling of the leaves are signals of distress. Usually the tree is starving. It cannot assimilate and appropriate solid substances, and as there is no water to dissolve its food it can neither eat nor drink, and has no means of sustaining its life. But a tree of vigorous constitution, growing in its native soil, will endure a long and severe fast. Of course it will not grow while it is starved, and in time its constitution will be impaired, its strength will give way and it will die. But it should not be cut down because it is having a hard trial.

The trees that are soonest injured by drought have in most cases nearly exhausted the soil in which they stand. The treatment required is not merely a supply of water, but an improvement of the soil. Grass and weeds should be removed from the ground about the tree as far as the roots extend, and either rich loam or manure of a suitable kind should be copiously applied and partially incorporated with the surface stratum. If enough water is then given it from time to time to dissolve the new supply of food, the tree is likely not only to live, but to grow much more vigorously than before. Great numbers of trees in our towns grow very slowly, become enfeebled and perish at last, not on account of drought alone, but because of exhaustion of the soil and an inadequate food supply. The people of a town ought not to remain comfortably indifferent while the noble trees which embower their daily walks are starving to death. They should take measures for their relief. Very often it would be better not to plant so many trees unless they are taken care of afterward. In many instances, Arbor-Day planting is the ceremonious murder of beautiful young trees, which are put into the ground with songs and orations, and are, apparently, not thought of afterward.

The groups of large trees will usually be accompanied by shrubs to connect them with the lawn: Rhododendrons and other pendent evergreens are very useful for such purpose, when the turf being carried under them leaves no cutting line of border. Shrubs should not be accompanied in the same bed by such flowers as require digging, the line of border above mentioned destroying that repose and that variety of form which ought to characterize the former.—*W. S. Gilpin's "Practical Hints," London, 1832.*

California Forests and Irrigation.

NO other part of the United States has so much at stake in any proposed system of irrigation as California. Farther north there is more rainfall, and farther south and east there has been little done as yet, in horticulture, and while the mining and pastoral communities in those regions have much to gain from almost any attempt at irrigation, they have less to lose from hasty experiments or reckless legislation. As the traveler comes westward from the valleys and plains of Colorado and Utah, the gardens of the Rockies, he sees in Nevada, as in much of New Mexico and Arizona, a land indeed arid, but nevertheless a land that can wait if need be. Few wheat-fields and vegetable farms and no great commercial orchards and vineyards are yet established in this vast territory. It is chiefly the great American speculator who urges the immediate expenditure of millions of dollars to restore fertility to this Sahara of the continent. There is no need of haste; let the work be done as increasing population presses hard on its food supply.

But California has a different claim. She has developed by a marvelous chain of circumstances a group of great industries that depend not partly nor temporarily, but absolutely and forever upon two things: (1) the permanence of the remaining forests upon her mountains and (2) the adoption of the most perfect system of irrigation under the best laws that human skill and experience can devise. Unlike Nevada, Arizona, New Mexico, Texas, Montana, Idaho and Wyoming, this great commonwealth has already established orchards and vineyards, which represent potentially the most important horticultural investment in the world, and every new fire in the Sierra Pines, every new logging camp in the Redwoods, every day's delay in the passage of laws to withdraw from entry all the timber-lands that yet remain, is as much a blow at vine and tree in the valleys as if the axe were actually laid at their roots.

While the thirteen American colonies were fighting King George, the Spanish settlers of California were planting vines and Olive trees, avenues of Pear, Fig and Orange, and establishing at more than a hundred mission villages and "ranchos" plantations that a century later were to become gardens of beauty and broaden into thousands of acres of fruit trees and vines. With few exceptions these old Spanish homesteads are the centres of the famous horticultural districts of the present time. Spain, Italy, Portugal and Mexico gave of their best to the gardens of the past, and the course of the ultimate growth of California was decided by that gift. The "gold rush" and the placer mining episode were merely a summer or two of camping in the foot-hills and splashing in the bright Californian rivers. When "the boys" came back from the mountains, there were the mission wheat-fields to bid them break the broad Sacramento plains; there were the mission vines and orchards to show them the real work of the future. Then they planted 15,000,000 fruit-trees and 15,000,000 grape vines. That, at least, is what they have to-day, after numberless experiments, and having utilized the greater part of the lands that under existing conditions are perfectly well adapted to horticulture, they begin to look abroad over their own wheat fields and pastures, which have the soil and climate required, but need security of another sort. Some of the orchards and vineyards are on "sand plains," once covered with Artemisia and Cactus, but reclaimed by irrigation. Most of them, however, have merely taken the place of Willow "bottoms," Oak-forests and miles of tangled mountain shrubs, and the actual leaf-surface is hardly greater in any of the valleys than it was before the orchards were planted.

Meanwhile the forests have been cleared at a rate which has never been surpassed in any community of equal size. Wood is almost the only building material in use in California. There are a few buildings of brick and stone, but these are but the exceptions to the rule. Then, too, the great mining operations have used up the forests with frightful speed. There are miles of flumes, miles of timbering and flooring, and "blocks" in tailing races, all cut from the best part of the trunks, with the rest left to perish. The Comstock mines have used up timber enough to build a city. Every smelter's furnace clears off acre after acre, usually taking only "fine milling lumber." The building of the stamp mills requires an amount of timber that astonishes the visitor. When a miner takes up a claim he first assures himself that water and wood are in the vicinity, without which it cannot be worked. No one who only knows the ordinary wastage of forests in other regions can have any adequate conception of the enormous and increasing requirement of the miner's pursuit. If the forests were withdrawn from sale, put under capable control,

and the "timber crop" sold in the open market, the miners would soon discover that they could get along with much less and the insane waste now going on would be prevented.

I have seen the bottom of cañons in the mining region literally crowded for miles with the trunks of Pines from each of which a few "flume blocks" had been sawed, and the rest discarded, though sound to the centre. I have seen mining reservoirs made in cañons, and many acres of stately Pines and Spruces left to perish as the water rose behind the dam. No one thought that it made any difference; the supply was called "inexhaustible." About twelve years ago, while a traveling correspondent of the San Francisco *Bulletin*, I rode over the mining districts of Nevada, Placer and El Dorado Counties, a region covering an area of more than 3,000 square miles. Near one of the little mining camps I made the acquaintance of a pioneer named Rayburn, who had a saw-mill, and obtained most of his timber from Government land. One night when I sat in his cabin he asked me if I "had ever seen a Pitch-Pine-tree on fire?" "Now, that is one on the point of the ridge," he said, pointing to a stately specimen, "and I'll send Jim up to touch it off for you." Like a recent writer on forests and irrigation in one of the leading magazines, he had no conception of the Chinese fire-cracker folly of the idea of touching a match to a great Pine merely to see it blaze and fall, and it took half an hour to persuade him out of the notion of his pyrotechnic display.

The causes and extent of the forest-fires of the Pacific coast have often been discussed, but I cannot refrain from giving a bit of evidence from Professor Joseph Le Conte. In a recent conversation he referred to "one of the saddest sights" he ever beheld. It was a fire-killed forest in Oregon. "For thirty miles," he said, "I rode across a belt of timber. The trees had been magnificent Pines, few of them less than 250 feet in height. Fire had destroyed every vestige of vegetation, and in places the soil was burned out in great pits and hollows." The traveler in the Californian mountains will often come upon such fire-swept districts, where miles upon miles of forests that belong to the whole American people stand in utter ruin.

The lesson that Californians are strangely slow to learn is that the prosperity of the orchard-planted valleys depends upon the maintenance of the forest-reserves. The shortage of the Delaware peach crop of 1890 is said to have added a million dollars to the value of the California peach crop. But the limits of the possible extension of the peach industry are fixed by the condition of the high Sierras and of the upper ridges of the Coast Range. If California keeps the forests as the orchards of the mountains, gathering the annual timber crop as she gathers her annual fruitage in the valleys, then orchard belt and Pine belt will meet, and the whole state blossom, and every acre of barren waste be reclaimed at last.

Professor George Davidson, one of the most careful of observers, made a report, now almost forgotten, on the irrigation of the two great valleys, the San Joaquin and the Sacramento. This report, sent to Washington in 1876, still remains the most complete and practical study of the subject, but its suggestions have never received attention. The region under consideration, including valley and low foot-hills, covers 12,000,000 acres. Professor Davidson shows that the average rainfall in the mountains is sufficient to irrigate every tillable acre of this great district, and that the engineering problems involved are not difficult. He tabulates the catchment basins of all the streams on either side of the valleys, and shows that on the maintenance of the great forests the success of the entire system depends. First, he says, the waters must be controlled, placed under a general system of law and be irrevocably bound to the lands they irrigate. Secondly, the forest must be maintained in a systematic manner, so as to avoid waste. Thirdly, the development of a complete irrigation system must go hand in hand with a drainage system to reclaim the swamp and tule lands and carry off the surplus water from the plains. The Davidson Report, which makes a large volume of several hundred pages, illustrates the possibilities of scientific irrigation in California by the best examples of similar work in other countries, but its chief value is in the clear presentation of the necessity of utilizing the water of the Sierra if horticulture is to reach its full development in the great valley.

An ideal California is yet possible, but a few more years of neglect will forever destroy that ideal. California should be a state with one-third of its surface one vast garden and orchard, one-third occupied by great and permanent forests, yielding a revenue almost as large as that of the lowlands, and one-third snow peaks, wild Alps of rocks, high, open pastures and level tule islands reclaimed and changed into such Grass-fields as those of Holland. Everywhere there should be sufficient water, but nowhere torrents nor uncontrolled floods. On every terraced hill should flourish the Olive and Carob, the Vine and Orange, and the miners should toil in their camps among stately Pines.

Niles, Cal. *Charles H. Shinn.*

Earliness from Unripe Seed.

DR. STURTEVANT'S remarks on page 355, alluding to experiments at Geneva in growing Tomatoes from unripe seed, invite a reply, which I have delayed offering for a few days, until the different strains now growing in the garden of the Wisconsin Agricultural Experiment Station should have ripened their first fruits. A brief history of the case is this: Seed of the Cook's Favorite Tomato has been saved from very immature fruits through five seasons, the fruits being selected in every case from the plants grown from immature seed. The fruits from which the seed was saved had not attained full size, and exhibited none of the indications of ripeness.

The present season, the first fruit from the immature seed ripened on August 8th, while that from plants grown every year from thoroughly mature seed ripened August 14th, showing a gain in this case of six days in favor of the immature seed. The dates of maturity of the two selections, that is, from the immature seed and from the ripe seed, in our Geneva plantings are not at hand, but it is my impression that in some instances the gain has been greater than this. In a slightly different strain which was originated in 1889, by selecting thoroughly ripened fruits from the plants grown for three seasons from immature fruits, the first fruit ripened this season ten days in advance of that from the seed grown continuously from ripe fruit.

This experiment, including certain branches not here mentioned, has proved most interesting and instructive; and it is our intention to publish the results in detail when carried a little farther. I will only add here that the increase in earliness is accompanied by a marked decrease in the vigor of the plant and in the size, firmness and keeping quality of the fruit.

University of Wisconsin, Madison. *E. S. Goff.*

The Cactus in Garden Art.

The Cactus is a curiosity, one of the wonders of the vegetable kingdom. It is unusual, and therefore always bold and striking. For this reason it is a favorite with many as an object of ornamentation in lawns, and the species are often used in composition for landscape effect. In fact, so common is this use of Cactuses that we may take them to represent a type of ornamentation which is characterized by obtrusiveness and uncommonness. This is almost universally the form adopted by those who have a shallow love of Nature. It indicates that the designer is less in sympathy with his surroundings than with other regions, and that his desires are to be satisfied only by something which appeals at once to the eye as peculiar. Such types of gardens are common. One frequently sees glaring curves, angular banks, balanced figures, piles of stones, curiosities and abundance of abnormal and unusual trees and plants, but he rarely finds a picture painted in a landscape with the same taste that the artist defines and composes on his canvas. And even when we do find a garden created in the love and appreciation of Nature we are too apt to pass it by as tame or commonplace.

It is apparent that if Cactuses are to be used in landscape work, they must be treated wholly as accessories are treated, in the same manner as we treat a rockery or anything which is out of keeping with the general spirit of the scene. They should be inconspicuous, unless near a greenhouse or in restricted areas devoted to rarities and curiosities. In this climate they should never form an integral part of the landscape, for they never combine well with greensward and trees.

But we are not to be understood as discouraging the cultivation of Cactuses. We are only protesting against the grossness of fashion and taste which is too often confounded with landscape-gardening. Fashion often springs from an inharmony with nature, while landscape-gardening is always inspired by the genius of contiguous landscapes. As greenhouse plants, Cactuses possess many merits, and are eminently worth much more general cultivation. They possess, in a remarkable degree, curiousness and beauty, and they present an almost endless variety of forms and peculiarities. . . . The peculiarities of shape and form, combined with the great beauty of their flowers, are the very features which tend to make them common favorites for lawn decoration. But everything must have its place, and it should be borne in mind that Cactuses are valuable as Cactuses, not as elements in the landscapes of our climates.—*The American Garden.*

New or Little Known Plants.

Prunus Allegheniensis.

MANY years ago, during a visit to the late J. Roberts Lowrie, Esq., of Warriorsmark, Huntingdon County, Pennsylvania, he called my attention to a strange Plum growing along a fence-row in his neighborhood, and supposed by him to have been sown there by birds. Specimens of this Plum, which may have been in flower only, and hence hard to distinguish, were sent to Dr. Gray, who returned the name *Prunus insititia*. Thus the matter rested until, on further investigation, it proved to be not an introduced foreigner, but a new species, and was published in the March number of the *Botanical Gazette* for 1877. Recent study of the plant in its native haunts and in cultivation enables me to give the following amended description:

A shrub with straggling branches, three to five feet high, sometimes over twelve feet, and in port and form a small tree, seldom thorny; leaves obovate-elliptical, acuminate, finely and sharply serrate; petioles three lines long, pubescent, as well as the midrib and bases of the veins on the lower side of the blade; flowers in umbel-like clusters of two to five, from terminal and lateral buds, coetaneous with the leaves; pedicels filiform, hairy under a lens, or smooth, a fourth to half an inch long; calyx two to three lines long, minutely pubescent, the tube obconical, the teeth oblong-ovate, obtuse and shorter than the tube; petals round-obovate, three lines long; stamens very slender, some of them as long as, or longer than, the petals; drupe globose, about four lines in diameter, dark purple, covered with a bloom; stone obliquely obovoid, with a blunt point, the one suture capped by a strong ridge, rounded and marked lengthwise by a shallow groove, the other flattish and furrowed by a deeper groove.

The species, as far as yet traced, has a limited range, occupying a territory for the most part of the wildest character. Of frequent occurrence in the north-western corner of Huntingdon County, it extends from the limestone bluffs on the Little Juniata, near Birmingham (Miss N. J. Davis), over the so-called "barrens" to Centre County on the north and Spruce Creek on the east, and thence westward over Bald Eagle Ridge and Bald Eagle Valley and the Allegheny Mountain to Clearfield County and Boon's Mountain, Elk County (McMinn).

Even as a low shrub it bears a great abundance of fruit, which seems to be exempt from the attacks of insects. These little plums have a pleasant acid taste, and are known as "sloes" by the inhabitants of the region, and sometimes used by them for making pies and preserves.

In the drawing made by Mr. C. E. Faxon to illustrate this plant (see page 429), the flowering branch was taken from a plant that bloomed this year in the Arnold Arboretum, and the branch with mature leaves and fruit was furnished by the writer. *Thomas C. Porter.*

Easton, Pa.

Lilium Henryi.

AMONG the hosts of new and interesting plants collected in western China by Dr. Henry were a series of specimens of Lilies from Ichang, comprising *L. giganteum*, *L. tigrinum*, *L. longiflorum*, *L. Brownii*, and a new one which Mr. Baker named in compliment to its discoverer. Bulbs of this new species were also collected and forwarded to Kew through Mr. Ford of the Hong-Kong Botanic Gardens, and one of these is now in flower at Kew. In habit it is not unlike *L. lancifolium*, but the stem is thinner, three feet high, the leaves from one to two inches apart, each six inches long by an inch in width, the texture as in *L. lancifolium*. Dried specimens show an inflorescence a foot in width, consisting of a loose corymb of sometimes eight flowers, but the Kew plant produced only two buds, and one of these fell off before it developed. The individual flower is three inches across, the segments recurved as in *L. lancifolium*, two and a half inches long and an inch wide, channeled, very distinctly papillose on the lower part, colored bright orange-yellow with a few small spots of purple. The stamens are as long as the perianth segments, green, with yellow anthers.

Horticulturally, this Lily should prove at least as useful as *L. tigrinum* and *L. lancifolium*. The smallness of the inflorescence on the Kew plant is accounted for by the fact that the bulbs when received were small and partly decayed. Next year the plants should be much better.

Kew. *W.*

New Orchids.

CYPRIPEDIUM ELINOR, N. E. Br.—A hybrid raised in the collection of Mr. Drewett, of Mill-on-Tyne, between *C. superbiens* and *C.* × *selligerum majus*, the latter being the seed-parent, to which it bears a considerable resemblance.—*Gardeners' Chronicle*, July 12th, p. 38.

CYPRIPEDIUM YOUNGIANUM.—A hybrid raised by Messrs. F. Sander & Co., of St. Albans, between *C. superbiens* and *C. Rœbeleni*, the latter being the pollen parent. It is a delicately colored flower and tolerably intermediate in character. It received an award of merit from the Royal Horticultural Society on July 8th last.—*Gardeners' Chronicle*, July 12th, p. 51; July 19th, p. 81.

MASDEVALLIA SCHRODERIANA.—Exhibited by Baron Schröder at a meeting of the Royal Horticultural Society on July 8th last, when it was awarded a first-class Certificate. The flowers are described as rich crimson, the lower part, however, being white. It is said to be allied to *M. Rothschildiana*, a species also unknown to me.—*Gardeners' Chronicle*, July 12th, p. 51; July 19th, p. 81.

ZYGOPETALUM CRINITO-MAXILLARE.—A hybrid raised in the collection of Lord Rothschild, of Tring. The lip is described as violet, with a few white areas, the sepals and petals green, with bold brown spots. It was exhibited at a meeting of the Royal Horticultural Society on July 8th last, when it received an award of merit.—*Gardeners' Chronicle*, July 12th, p. 51.

CYPRIPEDIUM HOOKERÆ, var. VOLONTEANUM, Rolfe.—A very pretty Bornean introduction, which has appeared both with Messrs. F. Sander & Co., of St. Albans, and Messrs. Hugh Low & Co., of Clapton. The lip is a little constricted below the mouth, the staminode unnotched, and the broad petals much spotted on the basal half. It received an award of merit from the Royal Horticultural Society on May 28th last, when it was exhibited by Messrs. Sander as *C. Volonteanum*, though, botanically, I do not think it is more than a variety of *C. Hookeræ*.—*Gardeners' Chronicle*, July 19th, p. 66; May 31st, pp. 684, 687.

ÆRIDES J'ANSONI, Rolfe.—A Burmese introduction of Messrs. Hugh Low & Co., intermediate in character between *A. odoratum* and *A. expansum*, and supposed to be a natural hybrid between them.—*Gardeners' Chronicle*, July 19th, p. 66.

MAXILLARIA LONGISEPALA, Rolfe.—A graceful and pretty species, sent from Venezuela by Monsieur Bungeroth to Messrs. Linden, L'Horticulture Internationale, Brussels. The flowers are very large, the sepals and petals light purple-brown, faintly striated with a darker shade, the lip much shorter and greener. A plate will appear in the next issue of *Lindenia*.—*Gardeners' Chronicle*, July 26th, p. 94.

MASDEVALLIA ROLFEANA.—A very pretty little species, allied to *M. demissa*, but with much larger flowers. These are deep crimson-brown, with yellow tails. It was exhibited by Messrs. F. Sander & Co., of St. Albans, at a meeting of the Royal Horticultural Society on July 26th last, when it received an award of merit.—*Gardeners' Chronicle*, July 26th, p. 106.

Kew. *R. A. Rolfe.*

Foreign Correspondence.

London Letter.

NEW NEPENTHES.—Conspicuous amongst the new plants of last year was *N. Burkei*, introduced by the Messrs. Veitch, from Borneo, through their collector, Burke. It is a remarkable species in the absence of the vertical-toothed wings, which form a conspicuous feature in the pitchers of Nepenthes generally, and also in the form of the margin of the pitcher; moreover, it is a free grower, pitchers well and is very brightly colored. Messrs. Veitch have now obtained first-class certificates for two varieties of *N. Burkei*, both of them very distinct from the type, though still possessing its main features. The variety named Prolifica is certain to become a popular garden plant from its compact habit and profuse production of pitchers. The leaves are only about six inches long, by about an inch in width, whilst the pitchers are five inches long, and colored pale Apricot-yellow, with dark crimson blotches. The plant certificated was only eight inches high, yet it bore seventeen fully developed pitchers. The other variety certificated is named Excellens. In habit this is more like the type, differing

from it mainly in having pitchers more inflated at the base and much more highly colored. All three deserve to rank amongst the most ornamental of Nepenthes. A word of praise may be set down here concerning *N. Dicksoniana*, a hybrid raised at Edinburgh, and distributed by Messrs. Veitch two years ago. It is by far the noblest of that group of Nepenthes represented in *N. Rafflesiana*—small plants, producing enormous, well colored pitchers, whilst the constitution of the plant is as vigorous as that of the best of the genus. In my opinion, this and *N. Mastersiana* are the two best hybrid Nepenthes hitherto raised.

NEW SARRACENIAS.—There are now a considerable number of hybrid Sarracenias, which have mostly been raised in English gardens within the last twenty years. The first to succeed in this direction was the late Dr. Moore, the Curator of the Glasnevin Botanic Gardens, who raised *N. Moorei* from the Sarracenias being a yard through and as much in height. Being grown in a sunny, unshaded house, the pitchers assume most vivid colors. To recommend the species of Sarracenias for American gardens would be like sending coals to Newcastle, but the English-raised hybrids may not be so well known in America. Mr. Bull and Mr. Williams are the principal trade growers of these plants here.

DRACÆNA MISS GLENDENNING.—There are hundreds of varieties of colored Dracænas, all the progeny of *D. terminalis*, which, by the way, is green in the wild form, the color and endless variety being the outcome of high cultivation and crossing. For ordinary purposes there are few that equal *D. terminalis* as known in gardens, as it stands well, colors freely, is elegant in habit and easy to grow. Messrs. B. S. Williams & Son obtained a certificate for one named as above, and which

Fig. 53.—Prunus Allegheniensis.—See page 428.

N. flava, crossed with *N. Drummondii*. This was in 1872. Various combinations of species have been obtained since then, some of them beautiful additions to the genus. The latest hybrids were three which were raised in a garden at Lincoln from *N. Drummondii alba* and *N. Chelsoni*, itself of hybrid origin. These were exhibited recently at a meeting of the Royal Horticultural Society, by whom a certificate was awarded to the best of the three, which was named *S. Claytoni*. The pitchers in this were about eighteen inches high, slender, in shape similar to those of *S. Drummondii*, whilst their color was rich crimson, shaded with purple and reticulated with very dark veins. This is certainly the best colored Sarracenia hitherto obtained. The other two exhibited were from the same parents, but different in the form and colors of the pitchers. A collection of well-grown Sarracenias is about as interesting as any foliage plants can be, and almost as much may be said of them as flowering plants. All the best kinds are included in a large collection of insectivorous plants at Kew, some of

was generally voted an exceptionally elegant variety. It has narrow, tapering, arched leaves, deep green, with a broad margin of rich crimson. As a table plant it is certain to become popular.

CLIANTHUS DAMPIERI.—Whether it be due to the grafting or to the exceptional constitution of the variety, it is certain that this plant is at Kew a perfect success in the open air. It is planted in a narrow border of loam and trained against a wall looking south-east. When planted late in June the stem was only three inches high, and yet, in spite of cold, wet weather, it is now a large, well-branched plant, clothed with healthy leaves and bearing numerous clusters of its brilliant colored flowers. Nothing could be more attractive, nor apparently anything much easier to obtain, than this plant as it is now at Kew. Probably the sturdiness of the plant is the result of its being grafted on *C. puniceus*. The variety called German Flag is remarkable in having the segments which form the keel white, with a scarlet margin.

OLEARIA HAASTI.—This is probably the most useful of the numerous species of this genus which have so far been introduced from New Zealand and tested in gardens in this country. At least a dozen species could be named as having larger and prettier flowers than this, but they are either too tender or too straggling in habit to obtain a place amongst first rate hardy flowering shrubs. When first introduced *O. Haasti* was cultivated in pots in the greenhouse, and it was only after about a dozen years' trial that its hardiness became generally known. In many of the best gardens in England it is now largely used both as a small specimen plant for the border and in large masses for bold effect. At Kew it is particularly effective in the form of large beds, which are now a mass of white starry flowers. It is also fine as a specimen. The plant is as compact in habit as the common Box, and it bears the knife or shears quite as well as that plant. Grouped with summer-flowering plants, such as Liliums and Gladioli, it forms a most satisfactory ground or foil. Then it possesses the exceptional quality of remaining a long time in bloom, and of being at its best in the month of August. At Kew there are several plants of it trained against a wall, and these are quite as well flowered as those in the open, and apparently as healthy. In the warmer parts of England it grows apace; I have seen it in south Wales over six feet high and eight feet in diameter. It may be propagated from cuttings with as much ease as Box.

EUCRYPHIA PINNATIFOLIA.—Although one of the handsomest of flowering shrubs or small trees, and notwithstanding its having been in cultivation in England at least ten years, this plant is yet scarcely known in ordinary gardens. In the nursery of Messrs. Veitch at Coombe it is a great attraction at this time of year, being thickly clothed with pure white flowers as large as, and shaped like, those of the St. John's Wort, its near relative. In gardens where this plant will succeed it should be well represented, for it is handsome even when not in flower. A basket of flower-branches was one of the most attractive of the exhibits at the last meeting of our Royal Horticultural Society. A word in respect to the propagation of this plant. It does not strike freely when cuttings of ripened wood are used, but if the young shoots are taken when about half ripe and placed in a little warmth they strike root in a short time.

ABIES TSUGA.—This handsome Japanese species has just obtained a first-class Certificate notwithstanding its having been introduced as far back as 1853 by the late Dr. Siebold and named *Tsuga Sieboldii*. It has the habit and general appearance of the Canadian Hemlock Spruce. It forms a pretty pot specimen as well as being an elegant conifer for small lawns, etc. It is, of course, quite hardy in England. There are good examples of it on the lawns at Kew.

TILIA EUCHLORA.—Some branches of this Lime were lately shown by Messrs. Veitch and obtained a first-class Certificate. It is a tree of striking appearance, having heart-shaped leaves fully seven inches long and wide, the texture leathery and the color a deep glossy green. Messrs. Veitch recommend it as a fine avenue tree, holding its leaves much longer than ordinary Limes. It has been introduced from Japan.

London. *W. Watson.*

Cultural Department.

Preparing for Easter Flowers.

AT the late Florists' Convention in Boston, Mr. James Dean, of Bay Ridge, New York, read an essay on the Easter flower trade. The extracts which we give below comprise the more strictly cultural portions of this paper:

Three-fourths of all the Easter Lilies are now forced from bulbs of *L. Harrisii*, which is more profitable and flowers more freely than *L. longiflorum*, and the plants are not liable to come blind. They can be forced with safety at a higher temperature than plants of *L. longiflorum*, and if they are removed to a temperature of fifty degrees at night, with air during the day, two weeks before the flowers open, they will be just as firm and will yield nearly twice the number of flowers. Most of the Lily bulbs come from Bermuda in July and August. They are at once potted in a light sandy loam to which has been added about one-third of well-rotted manure. The bulbs are placed about one inch below the surface of the soil, and the pots are then set close together in a frame out-of-doors, treated to a good watering, and covered with a mulch of hay or straw to prevent the soil from drying out rapidly and save watering. They can remain out-of-doors until frost, although a degree or two of frost will not injure them. From the time they are brought into the greenhouse until New Year's, a night temperature of forty to forty-five degrees with plenty of air during the day is all they require. After New Year's they may be removed to another house or the night temperature may be increased to sixty or sixty-five and even seventy degrees if the weather proves bad and there is little sunshine. The flower buds should be brought well above the foliage six weeks before Easter, so that one standing in the doorway of the greenhouse can plainly see all the buds. Bear constantly in mind that it is much easier to hold the flowers back by shading and giving plenty of air, which hardens and stiffens them and enables them to bear transportation, than it is to hurry them into flower by steaming the pipes and giving them warm water. Under such treatment, Lilies are fit only for the rubbish heap. Before delivery each flower should be covered separately with fine tissue paper, and the buds or unopened flowers should be treated in the same way. In fact, every plant sent out for Easter should be wrapped, for although it takes a great deal of time in the rush of Easter work there will be little complaint of flowers damaged in transportation if this precaution is used.

The Azalea is second in importance on the list of Easter plants. The most of the plants for forcing come from Ghent, reaching here in October, and although packed carefully they do not always arrive in condition to be flowered the same season. They often drop their foliage and flower buds, and then must be grown another year before flowering. The successful Easter grower never depends on his last importation of Azaleas for Easter forcing, but always carries at least one year's stock of plants ahead to meet loss or damage. The Azaleas during the winter months can be kept in a night temperature of forty degrees, with plenty of air during the day, until eight weeks before Easter. If Easter comes in March, fifty-five degrees will answer at night; if Easter comes in April, fifty degrees will suffice. It will be necessary to set some of the late varieties into heat two weeks earlier. Do not stand the plants under the shade of some convenient tree during the summer months and expect them to flower the following winter. Give them the open sunshine, plunged or planted out in a Pansy frame. If the soil is heavy add sand and leaf mould, as the Azalea delights in a light, loose soil. Mulch, but do not use manure, and water and syringe to keep down red spider. Treated thus they will make a good growth and mature their flower buds and give a good crop of flowers when they are wanted. They should be carefully housed before frost to prevent injury to the buds.

The Hydrangea is now pushing the Azalea closely for second place on the list of Easter plants. And certainly a specimen plant of *H. Otaksa*, covered with its immense clusters of bright pink flowers, is worth seeing. These flower-clusters, often measuring over twelve inches in diameter, and of a color that shows equally as well by gas as by daylight, make the plant very ornamental. Thomas Hogg is still a favorite, with its pure white flowers, and will always retain a prominent place among the plants grown for Easter. *Hydrangea rosea* deserves to be grown in all collections, although the flowers are not as large as those of *H. Otaksa*, nor is the plant such a vigorous grower. The color and the freeness with which it produces its flowers will always give it a place as a market variety. A cutting struck in March, planted out before the first of May in a good rich soil and mulched and watered regularly, will by October make a plant fit to go into a seven or eight-inch pot. The plants should not be pinched or topped after the middle of June if they are wanted for Easter forcing. They may be lifted by the 10th of October, potted in good rich soil and placed in a cold frame until New Year's, with abundant air during the day and the frames covered by night to protect them from frost. They are brought into the greenhouse at New Year's, and given a temperature of sixty degrees at night, with air during the day, for three weeks, after which the temperature is increased to sixty-five degrees at night, with little air during the day, until the flowers begin to color. Then more air is gradually given during the day and the temperature reduced at night to give bright color to the flowers and harden the plant so that it can stand out in the air without wilting, as a great many of our city florists have to display their plants in the open air in front of their stores. This rule holds good for all plants that are forced for flowers, especially so with the Hydrangea and the Rose Madame Plantier, both of which, if grown in a warm temperature and exposed without being hardened, will wilt very badly when exposed to cool air. The Hydrangea when in growth requires plenty of water and an occasional watering of liquid manure will be a benefit to the plant.

The Cytisus comes next in importance as an Easter plant. Two kinds are grown. *C. Canariensis* is best suited for decorations when large plants are required; *C. racemosus* is

Fig. 54.—The Flowering Dogwood.—See page 425.

not of such strong growth, and is better used as small plants, kept in shape by trimming, which it stands well. The flowers are a little larger and of a deeper yellow than those of *C. Canariensis*. The plants grow freely from cuttings in a light soil to which has been added some well rotted manure. Shifted as they require they soon make salable plants if not overpotted. They should not be planted in the open ground during summer, as they lift badly, and often lose all their foliage. The plants should be plunged and mulched out-of-doors in summer, and not allowed to get dry. They can be housed the latter part of October, and will require little forcing for Easter. Forty to forty-five degrees at night with plenty of air during the day until the first of February, then fifty degrees at night with less air during the day, is the proper treatment. From the first of February they will need plenty of water, and one or two waterings with weak manure water will be of benefit, especially if the plants are in small pots.

There are other plants besides these four also largely grown, such as Spiræas, Deutzias, Callas, Roses, Rhododendrons and Geraniums; but their cultivation is well understood even by novices. Bulbs, too, are largely grown for Easter. No cultural directions are required here, although a word may be given as to the cultivation of the Lily-of-the-Valley in pots. Place fifteen pips in a five-inch pot twenty-one days before Easter and set them in the dark under the bench in a warm greenhouse for two weeks. At the end of that time they can be placed on a bench with light and air, to give the foliage its natural color and harden its flowers. Such plants make beautiful and appropriate gifts for Easter, and are in great demand.

Ferns of Singular Form.

AMONG the multitude of Ferns there are many of unique form, and having so striking an appearance as to attract the attention even of the casual observer at once. In this list may be mentioned the Stag's Horn Ferns (Platycerium) as among the handsomest and most noteworthy of the many good plants introduced from the South Sea Islands and Australia, and including a number of varieties, most of which are very distinct in character, while all are deserving of cultivation. The most impressive of the Platyceriums in general appearance is undoubtedly *P. grande*, a noble plant when well grown, and producing, in common with the other members of the genus, two distinct types of foliage, the one being barren and the other fertile and of very different form. The barren fronds are upright and sheath the base of the plant as with a shield, the upper edges of the frond being divided into numerous forks or lobes, and growing to a height of two to three feet, while the fertile fronds are thrown out at a right angle to the others, and are also divided into forked segments, so that altogether the fronds bear a striking resemblance to the antlers of certain deer. As though in keeping with the odd form of the entire plant, the seed-cases or sori are grouped together in a compact mass near the central part of the fertile frond, the seed-bearing portion sometimes being several inches in diameter and bearing some resemblance to a patch of brown Fungus.

Another fine species of more recent introduction than the above is *P. Willinckii*, a native of Java. It is of free growth even in a moderately cool fernery. This plant is not so large as *P. grande*, though the fertile fronds attain three feet in length at times, and are so covered with whitish scales as to present a frosted appearance. The barren fronds of *P. Willinckii* are somewhat similar in shape to those of *P. grande*, but not nearly so large, and seem soon to have accomplished their mission, as they begin to decay soon after their growth is completed.

P. alcicorne major is a great improvement on the type, producing much larger and finer fronds, and is an excellent Fern for exhibition purposes, the fronds being deep green in color and presenting a bold and massive appearance. *P. alcicorne* still remains, however, a first-rate Fern for baskets, or for rockeries, and it is doubtless the most hardy of all the Platyceriums.

P. Stemmaria, *P. Hillii* and *P. biforme* are other representatives of this genus, all of which grow best when suspended on a block of wood or portion of a Tree-Fern stump, the only soil necessary being some rough peat. When grown on this system frequent watering or dipping will be needed, as they dry out quickly in bright weather.

Another family of strange growth is that of the "Bird's Nest Ferns" (Thamnopteris), a genus having ample, entire leaves, which reach a length of from three to four feet and are about six inches in width. The leaves are glossy, a bright light green in color and of strong texture. They are produced in a kind of whorl around the stem, thus leaving the centre of the plant open, and the crown, being more or less covered with brown chaffy scales, gives it somewhat the appearance of a bird's nest without the eggs. The best species of this genus is *Thamnopteris Australasica*, which is the easiest to manage, and, as a native of a temperate climate, it may be grown in a cool house, or even out-doors in summer if it is only placed in a shady location.

The Menisciums also may be classed among singular Ferns, especially *M. simplex* and *M. giganteum*, both of these having the barren fronds, simple in form and also much more ornamental than the fertile fronds, the latter being more contracted and not so enduring in quality. *M. simplex* is the smallest of the genus, so far as I am aware, the fronds being simple and the barren ones auricled or eared at the base, and about six inches in length, while the fertile fronds are entire and much smaller, the under surface being almost covered with the fruit-dots or sori. *M. giganteum* is much larger in all its parts than the one just described, though of somewhat similar character, and it will flourish with rather more heat than *M. simplex* can endure. An ordinary compost, such as is generally used for Ferns, will suit this genus, and they require an abundance of water.

Drynaria musæfolia is another of the simple-leaved forms that generally attracts attention. It bears fronds somewhat like those of the Thamnopteris referred to above, but having the veins more sharply defined and being of a rather peculiar shade of light green. It is an evergreen plant, and was introduced from the Malayan Islands many years ago.

At least one of the so-called Filmy Ferns may be included in our short list of singular forms—namely, *Trichomanes reniforme*, which might be called the Kidney Fern, a very pretty little plant from New Zealand. It has bright green leaves, which are thrown up from a creeping rhizome, and attain a height of three or four inches.

This is not a rapid-growing plant, and requires a very open soil, such as rough peat and sand, with some broken sandstone and charcoal mixed through it.

Our native "Walking Leaf" (*Camptosorus rhizophyllus*), which is found in many localities in the northern states, though not in large quantities, is worth noting. It is also evergreen, and may well find a place in the cold fernery, where its long, narrow leaves and curious habit of reproduction from the apex of the fronds always excite interest.

Holmesburg, Pa. *W. H. Taplin.*

Notes on Shrubs.

Buddleia Japonica is an east Asian plant which has been grown and disseminated under the names of *B. curviflora* and *B. Lindleyana*. These names, however, belong to other different species which would probably not be hardy in this latitude. Although *B. Japonica* is interesting in itself, it is not a shrub to be recommended for small gardens, where conspicuous and attractive blossoming is wanted, because the space can be better filled with plants of a more pleasing and ornate character. The ends of the stems of *B. Japonica* are usually more or less killed by the winters here; but this does not affect the blooming of the plant, and at the end of each new shoot a long, close raceme (sometimes nearly a foot in length) of small, tubular, light purple or lilac flowers is thrown out in July and August. The first flowers open at the base of the raceme, and, as but very few open at any one time, they never appear very showy or ornamental. By the time the terminal blossoms expand the seed-pods at the base of the raceme have become large and well developed. The stems of this plant attain a height of from four to six feet, and, when young, are sharply four-angled or winged, and the roughish looking leaves are from four to six inches long and gradually taper to a point. As the heavy racemes of fruit and flowers at the ends of the shoots give the plants a more or less drooping or pendulous appearance, they lend an added interest and variety to the shrubbery of parks or large plantations. The foliage is dense enough to completely cover the stems, and it seems very free from injuries by insects. Seed is freely and abundantly produced and is easily carried some distance by winds, and, under some favorable conditions, it germinates and grows spontaneously.

Incarvillea Olgæ is a half shrubby or almost herbaceous plant belonging to the Bignonia family. Originally introduced from high elevations in Turkestan, it has, without any protection, withstood the climate and winters of Boston and shown no injury. *I. Olgæ* annually produces new shoots from the ground, which become two or three feet in height. These stems are smooth, more or less branched and well covered

with light green pinnatifid leaves. The plants slowly spread from the roots and eventually form large clumps. In this latitude, however, the blossoming is very disappointing. The flowers are borne in racemes at the ends of the shoots, but they are usually so few in number and expand in such slow succession that they add little to the beauty of the garden. The pretty rosy pink trumpet-shaped flowers are about an inch and a half in length and nearly an inch and a quarter across the mouth, and are produced in August and September. It is possible that we have not given the plant the best conditions for fine development, because it seems to be valued in some European gardens. If very free-flowering plants should be produced from seed they ought to be perpetuated by division.

This species is the same as the one figured in the *Botanical Magazine* (t. 6539) as *I. Koopmanni*, and under this name it is still advertised in some foreign catalogues.

Arnold Arboretum. *J.*

A Few Annuals.

COMET ASTERS.—The first of this distinct strain of China Asters was introduced a few years ago and met with instant appreciation, but more on account of form than coloring, which was white, lined with pink, and this color fading left the white rather turbid. However, the form was very distinct; the flat reflexed petals with blunt points, arranged rather informally, resembling very much some Japanese reflexed Chrysanthemums. Two or three years since a variety "Rose" followed, which is a great gain and one of the most pleasing of China Asters. The form is like the type, and the color is a beautiful, light, clear pink. This year we have the "Blue" Comet, which, as may be supposed, proves to be a purple, but of a very pleasing, clear light shade—a first rate variety. Both the Rose and Blue Comet Asters can be recommended for addition to the choicest collections.

CHINA ASTER PRIDE OF THE MARKET, a novelty of the season, is interesting for its precocious bloom, as it came into flower about a fortnight before the general collection sown at the same time. It is a reflexed variety, with fair-sized flowers of various colors. The stems are unusually long, and it should be a good strain for the florists. For the garden the growth is straggling, and the plant requires rather more tying up than many would be prepared to give it. However, if early flowers are wanted, this strain is well worth growing.

SWEET ALYSSUM LITTLE GEM.—This strain is a good example of what may be secured by careful seed selection. The entire lot of seedlings is dwarf and compact, without any of the legginess or weediness usual in the ordinary variety. The bloom is white and free as in the type. It is an excellent edging plant, being always in flower, and not outgrowing its bounds.

SALVIA COCCINEA, with its variety Lactea, are two beautiful Sages, the former a clear, deep scarlet, the latter pure white. They come true from seed; the plants are some two feet tall, much branched, with flowers borne in long spikes, and though not lasting very well when cut, are useful in bouquet making. To many this variety may prove a welcome change from *S. splendens*, which, while it is one of the most valuable and easiest grown of showy plants, is somewhat tiresome from its commonness.

CHRYSANTHEMUM MULTICAULE.—The introducer of this plant this spring frankly stated that it had been known for many years as "a botanical curiosity," and it would seem that in a botanical collection is its true place. The plants are annual and come into bloom early. It is dwarf growing, with prostrate glaucous foliage. Its flowers are single, yellow, small—an inch across—and plentiful, but only open in bright weather and in the middle of the day, so that its value for garden purposes is very slight, as we have so many better yellow Composites.

Elizabeth, N. J. *G.*

Growing Pears.

THE fact that Pear culture is no longer seriously hindered by blight makes a few hints timely as to method of planting and culture. I have for many years grown Pears headed low toward the ground. To secure such I have sometimes negotiated beforehand with nurserymen to prevent their being trimmed up in the nursery. I prefer them branched out at three feet from the soil. The reasons are obvious. (1) They come to bearing as soon as dwarfs, thus saving three to five years before getting a crop. (2) For picking there is great advantage. You can gather the fruit for several years with a step-ladder. (3) All fallen fruit lies comparatively uninjured. (4) In case of drought the limbs shade the soil and equalize temperature. It must be borne in mind that more damage to fruit occurs from severe changes of temperature than from extreme cold. (5) You are able to trim the trees as they should be without much trouble. Pear-trees should, for the first five or six years, be gone over twice a year. In midsummer cut out all superfluous shoots and suckers, and in November head back the new growth one-third.

I also have for many years grown Pear-trees as Dr. Meehan first suggested, "in grass." By that is not meant that the trees stand in sod, but that instead of being cultivated with the plow they be cultivated with the fork. Let the trees be well mulched with coarse manure or ashes of anthracite coal mixed with wood ashes. Turn this over and cleanse it of weeds once a year and thoroughly aërate it. It should be renewed once in two years. The principle is to keep the feet warm while the head is kept cool. The circle forked over should be larger in diameter each year until it is eight or ten feet across. I use weeds for mulch if other material is scarce. Sawdust is good, especially after being run through the stable for bedding.

No manure whatever should be used in planting a Pear-tree, but a top dressing of coarse manure is often needed. Some varieties require more food than others. The Seckel is a good eater and digests well. The Anjou is another. But the rule is, not to force or stimulate a Pear-tree or a Cherry-tree. But no fruit suffers worse from neglect. Choked by sod the Pear fails to bear any fruit of marketable value.

The Pear-tree is hardier than the Apple and more easily grown. Its culture is never overdone. We could find market for a hundred times the present amount grown—only we must plant with regard to seasonableness. There is a pear glut some years during September. Pears that keep long, like the Anjou, Louise, Bosc and Clairgeau, are marketable from November 1st until New Year's, and always find ready sale. All in all our grandest market as well as table pear is Anjou. It is an ideal fruit. I pick it in early October and have it till Christmas. Another Pear that I like well is Gray Doyenne.

Clinton, N. Y. *E. P. Powell.*

Correspondence.

Forests and Scenery in New Hampshire.

To the Editor of GARDEN AND FOREST:

Sir.—I have recently examined portions of the White Mountain region of New Hampshire, seeing as much as possible of the scenery around Fabyan's, Crawford's, the Glen and Profile Houses and about Bethlehem. I went up Mount Washington by the stage-road from the Glen House, and came down by the railroad. I drove through the White Mountain Notch from Crawford's and went out the whole length of the Zealand Valley Lumber Railroad on a gravel train. From Fabyan's and in other places one sees on the mountain-sides extensive tracts which have been burned over, where the dead, unsightly tree-trunks destroy all the value of the scenery for the present. The sky-line, which in all fine landscapes appeals strongly to the imagination, with its suggestions of infinite distance beckoning to fairer scenes beyond the utmost range of vision, is here utterly vulgarized and degraded by these straggling ranks of decaying stumps. While these repellent objects mar the scenery it will yield no delight to visitors who seek the solace and peace of Nature among these mountains. But in a few years the dead trees will have fallen and disappeared. The slopes are already green, as they are growing up with Bush Cherry and other shrubs, which, though worthless for timber, will yet clothe the hills until the burning is repeated.

If we look at it from a few miles away, the forest still appears unbroken over a large proportion of the White Mountain region. But when we go into the woods we find a great deal of cutting, and there is much alarm among the hotel proprietors and their guests on account of the vigor with which the lumbermen are extending their operations in the vicinity of the great mountain houses. All tourists will remember the beautiful drive through the White Mountain Notch from Crawford's, shaded and embosomed under a bower of greenery, mile after mile, all the way. To what multitudes of people the coolness of these woods, and the murmurous music of their crystal waters, have given rest and delight. Now it is ruined. For a large part of the distance the woods have been cut off. The trunks of the White Birches, which rose through the green leafage like slender shafts of silver, have been cut up into suitable lengths for the market, and the tops of the trees sprawl everywhere over the ground in confusion and entanglement. The sun-glare is hot on

the road, and the air seems entirely changed. The sylvan fragrance and freshness are gone.

Everybody who visits the region ought to go up into the woods the full length of the Zealand Valley Railroad, about ten or twelve miles, taking the cars at Zealand Junction, two miles below Fabyan's. That country belongs to Messrs. J. E. Henry & Sons, lumbermen, and they have built a good standard gauge railroad, on which they bring out their timber. It would be an excellent thing if they could be induced to run excursion trains over it. They cut only down to ten inches, but the Spruces stand so thickly that in many places it is difficult to remove the large timber without destroying nearly all. I think these proprietors do the best they can to prevent the complete destruction of forest-conditions, but they are pretty nearly helpless against fire. A fire in these woods in a dry time can be controlled only by attacking it very soon after it starts, and there is no fire-police or forest-guardianship of any kind, except that of individual land-owners. The fire comes some time, and there is a considerable region along this Zealand Valley Railroad which has been burned until it is completely ruined. The soil has been washed away from the steep slopes, leaving the rocks bare and glittering. All tourists who wait for the cars at Zealand Junction should look across the narrow valley in front of the station, and note the two denuded hills or ledges of rock. Their white desolation shows what is the destiny of most of the White Mountain region if nothing is done to interfere with existing conditions and agencies. The ruin is not coming rapidly, but it is coming surely. More and more of the whole region will be cut off, and afterward burned over, till in time there will be no timber, or shade, or verdure, or springs of water in all the mountain country of northern New Hampshire.

What can be done to avert these threatened calamities? It is not easy to say. But the best way of approaching the matter that seems to be open to us in this state, is the establishment of a Board of Trustees empowered to acquire by gift from individuals or bodies of subscribers, parcels of real estate possessing special natural beauty, and to hold the same, together with funds for the maintenance thereof, free of all taxes, they to be required to open to the public all such lands, on condition that the state shall provide some adequate means for the protection of the forests on them from fire. This is about the plan of the association formed in Massachusetts a few months ago for the preservation of scenery and the care of places of historic interest. Under such an arrangement tracts of special beauty and interest near our great mountain resorts could be gradually acquired and forever preserved from spoliation.

Perhaps in time the state might be brought to help. But the first need is that of some kind of association, composed of the leading hotel men and other public spirited citizens of the state, to provide for some degree and method of co-operation. It is not likely that the state will do anything in the matter unless some of the men most directly interested in the pecuniary value of the scenery of the White Mountain region come together and arrange some method of awakening public interest and enlisting public support for a moderate and reasonable plan for the protection of the mountain forests against fire. The state might fairly be asked to provide and maintain some kind of forest-fire police service in the mountain region where the sparse and scattered population is inadequate for such a task. But all this is my personal suggestion only. It is not official and does not commit the other members of the State Forestry Comission to its support.

Some writers on the subject say the state should condemn and appropriate to public uses the entire "Presidential Range" and other extensive tracts in the mountain region. But nothing of the kind has ever been done in this country, and in this state we have not had even the beginning of the educational work which would be required to prepare the minds of the people for a proceeding of such magnitude. If we could have a few years of such preparatory work we might be able to begin in a small way (and that would be the best way) a course of action which would result in the permanent preservation of the best of our New Hampshire scenery. But I suppose that very few, even of our leading citizens, have as yet begun to consider or inquire by what methods anything in this direction might really be attempted or accomplished. Somebody's time and labor would be necessary, and much talking and conferring, writing and publishing—in short, general agitation and discussion.

If New York establishes a great State Park in the Adirondack region it will greatly stimulate attention to scenery interests in New Hampshire.

Franklin Falls, N. H. *J. B. Harrison.*

Wheat and Rye Hybrids.

To the Editor of Garden and Forest:

Sir.—In connection with Mr. E. S. Carman's experiments in hybridizing and his success in producing a hybrid between Wheat and Rye, as told in the last number of Garden and Forest, it may be of interest to note that other experiments in the same direction have been attempted. At a meeting of the Botanical Society of Edinburgh, held April 8th, 1875, specimens were shown, and a paper was presented by Mr. Alexander Stephen Wilson on "Wheat and Rye Hybrids," which is printed in vol. xii., p. 186, of the *Transactions* of the Society.

Out of a large number of experiments, begun in July, 1873, on Wheat, Spelt, Rye, Barley and Oats, all of several varieties, only plants from two of the resulting seeds were selected as true hybrids. In the author's words, these were from "Wheat ovules and Rye pollen, and the whole aspect of the culm and ear is intermediate between Rye and Wheat. The elongation of the outer pales into awns midway in length between the blunt termination in Wheat and the longer needle of Rye is the most noticeable feature. The thinness of the culm is characteristic of Rye, and so is the slight villosity below the ear, not so observable now as when green. The glumes, also, are intermediate in size between those of Wheat and Rye.

"All the florets on these spikes fully opened, as if intending fertilization, and on some of the ears they did not close again. But what seem to be the most important facts regarding these hybrids are that the anthers did not open nor discharge any pollen; that the pollen was imperfectly developed and contained very little fovilla; and that the imperfect grains remain in the dried anthers. These facts are a sufficient reason why these hybrids are absolutely barren; not a single kernel having been produced. The anthers did not get blanched as empty anthers do, and instead of falling away as is usual they still remain attached, so that the imperfect pollen may be examined by breaking up an anther in a drop of water. The anthers are of Wheat size. In the ordinary fertilization of a Grass, the pollen grains continue to grow until they rupture the anther; in these hybrids this full growth of the pollen grains has been arrested."

Mr. Carman states that his hybrids are growing more fertile each year they are propagated. The above earlier hybrids would be called failures from a utilitarian point of view, and although Mr. Wilson has several other papers "On the Fertilization of the Cereals" in the *Transactions* of the Edinburgh Society, I am not aware that further attempts in hybridizing Wheat and Rye were ever made by him.

Arnold Arboretum. *J. G. Jack.*

A Mysterious Conifer.

To the Editor of Garden and Forest:

Sir.—I have just visited and examined afresh in the Palace Garden at Potsdam the original specimen of *Abies Eichleri*, planted and named by my late friend Lauche. As this tree, for a long time almost forgotten, has recently been much talked of, and as its right to represent a distinct species has been contested, it may be interesting to glance at its history.

A certain mystery always hung around its origin, the exact locality which furnished the seed from which it sprung being somewhat obscure. All that was known was that it was of Caucasian origin, but this seemed indubitably established. Very recently, however, Herr Beissner and Herr Kenning made a special study of *A. Eichleri*, and according to them it is merely a false species, produced by an accidental change of seeds occurring in the consignment sent from Tiflis to Potsdam. After seriously examining all the facts which they could obtain they conclude that this tree is nothing but *A. Veitchii*, of Japan, under a new name and a Caucasian alibi. No one, it was said, had ever seen *A. Eichleri* in a state of nature. But two or three individuals were known, of which the largest, the true mother-tree and the original of Lauche, is at Potsdam, in the gardens of the State Nursery, which forms part of the royal park of Sans-Souci.

On the other hand, Herr Wilhelm Hans von Herrenhut tells us (in 1889) that the very restricted habitat of the species has just been discovered in the wild and romantic valley of Daba, near Borjon, in the Caucasus Mountains. Now, which of these contradictory statements are we to believe? On the one hand we have the testimony of much respected savants, on the other the judgment of a dendrologist as accomplished as the late Herr Lauche, reinforced by the recent discovery of Herr Hans von Herrenhut.

Dr. Dieck, who is on the point of starting for Asiatic Russia, expects to collect and to observe everywhere he goes,

especially in the Caucasus; and being more conversant than any one else with this vexed question, will, we hope, bring us back its solution.

Lauche received the seeds from Monsieur Radde, of Tiflis, that great explorer of the Caucasus, who is still living within its borders. Only a single seed germinated in 1870 or a little later. The plant which it produced so strongly resembled *A. Nordmanniana* that it was at first considered simply a variety of this; but, prematurely producing cones as early as 1881, the abnormal form could not escape the practiced eye of Lauche—they were much smaller and of a bluish black. Moreover, the silvery color of the under surface of the leaves and the very pronounced glaucescence of the young shoots clearly distinguished this conifer from *A. Nordmanniana*, which it otherwise so much resembles.

The original tree at Potsdam is now eight feet in height, with a considerable spread. No one would call it a beautiful object. Placed in a very confined position between other conifers, all of which surpass it in height and in beauty, it merely forms a large bush of irregular tufted shape, having lost its leader, and is making no haste to repair the loss. Since its first attempt at fructification it has remained sterile, so that the rare specimens to be found elsewhere have all been produced by grafting. The specimen in the Botanic Garden at Berlin has remained a dwarf not more than two feet in height. A much better specimen, and one which promises to develop admirably, stands on the Island of Scharfenberg. Its height is about seven feet, and with its fine, straight terminal shoot and its superb silvery color, it is a most attractive object.

Let us hope that we may soon see clearly through the mystery that enwraps *A. Eichleri*. Certainly the last word has not yet been said with regard to it. Lauche believed that he had good authority for the belief that in its native wilds it reaches a height of 100 feet, usually being clothed with branches down to the ground. Moreover, it seems very improbable that seeds from Japan should have strayed to Tiflis, a city so far from the great commercial routes which unite the extreme Orient to Europe. I may add that the person to whom Lauche dedicated the tree was Herr Eichler, the last Director but one of the Botanic Garden in Berlin, who died only a few years ago.

Berlin. *Carl Bolle.*

Tree Peonies.

To the Editor of GARDEN AND FOREST:

Sir.—Having been much interested by the letter from Mr. Watson on the cultivation of Peonies in England, which you recently published, I venture to send a few complementary observations upon Tree Peonies.

These plants generally do very well in all soils where there is not an excess of moisture. A good ordinary agricultural soil (Wheat soil) is what suits them best, the fertilizer used being well pulverized cow manure mixed with leaf-mould. Fresh manures should be avoided as very prejudicial. These magnificent plants, as remarkable for the elegance of their foliage as for the brilliant and varied colors of their immense flowers, are all the more valuable as ornaments of the garden because they bloom at a season when flowers are still rare, long before the blossoming time of Roses. One sometimes hears the complaint that Tree Peonies do not bloom until several years after planting. Most often this results from improper methods of propagation. These shrubs, and especially certain strong-growing varieties, do not lend themselves well to rapid multiplication, and each stock normally yields but a small number of good shoots. Yet many horticulturists pitilessly take all the branches which a mother-stock can furnish in order to graft them, if possible, by single eyes. When for several years plants have suffered mutilation of this sort they produce only very small shoots, still suitable for grafting, but utterly incapable of flowering; and young plants obtained from such degenerate shoots are never vigorous; sometimes they take from seven to eight years to come into bloom, and certain individuals never bloom at all.

To obtain vigorous and floriferous plants enough shoots must each year be left on the mother plant to ensure its producing blossoms, and thus furnishing well developed cions which, for the most part, have already borne flowers. I am absolutely in accord with Mr. Watson when he says that the most vigorous plants will be those grafted on *P. Moutan*. But such grafting being little practiced on account of the almost insurmountable difficulty of getting roots large enough to receive fine grafts, we graft on the root of *P. Sinensis;* but instead of grafting a single eye at least two eyes must be taken (and even more if the eyes are very close together), and so disposed that at least one eye is beneath the surface of the ground. This eye greatly encourages the formation of roots on the graft, and such plants draw a great part of their nourishment from their own roots. Long experience has proved that Tree Peonies thus obtained are always the most vigorous and the most floriferous; and by this method we have plants of extraordinary vigor which delight all visitors by the abundance of their blossoms.

Chenonceaux, France. *Auguste Dessert.*

The Pepo of Peru.

To the Editor of GARDEN AND FOREST:

Sir.—In Feuille's "Peru," p. 735, under *Melongena laurifolia, fructu turbinato, variegato,* a fruit is described resembling a melon in appearance and taste, and cultivated in gardens at Lima under the vernacular name of *Pepo*. Dunal, in his *Histoire des Solanum*, identifies it with *Solanum muricatum*, Ait., with *S. scabrum*, Lam., and *S. variegatum*, Fl. Peru, as synonyms, and he adds that it also occurs in the gardens of Teneriffe.

Can any of the readers of GARDEN AND FOREST inform me whether this fruit has ever been tested in American or European culture, and whether it has merit as judged by European palates?

South Framingham, Mass. *E. Lewis Sturtevant.*

Recent Publications.

The True Grasses. By Eduard Hackel. Translated from *Die Natürlichen Pflanzenfamilien* by F. Lamson Scribner and Effie A. Southworth. Pp. 236. Henry Holt & Co., New York, 1890.

This is a most interesting volume and it will be indispensable to every botanist who has a library of any pretensions. It will be found worthy of a place on the shelf beside such works as those of Sachs, De Bary, Strasburger and the Genera Plantarum by Bentham and Hooker. No man has a better reputation for thorough insight into the structure and classification of the Grasses than has Mr. Hackel, and the results of his patient study are shown on every page. He has taken advantage of the labors of the best agrostologists who have gone before him, whether it be Robert Brown, George Bentham or General Munro.

Part I. treats of organs of vegetation, minute structure, the ligule, the leaf-blade, leaf-torsion, nervation, inflorescence, the spikelet, the stamens, the pistil, pollination, ovule, fruit, seed, starch, means of distribution, geographical distribution and fossil grasses.

At the outset, the difference between tufted and creeping grasses is explained, the latter only being well suited for making the close, even turf so much admired in lawns and old pastures; the difference between the culm-nodes and sheath-nodes is also noted, the latter usually extending farther down the culm. On the third page we are told that the nodes are not, as is often supposed, for the purpose of giving strength to the culm, but their function consists solely in the erection of culms that have become bent down. The parenchyma of the node is geotropically sensitive, and as soon as the culm is bent over, the cells on the lower side of the node elongate, and thus the action of several nodes will again partially place the lodged grains and grasses in an erect position.

The author refers, with some explanations, to the fact that many blades of grasses are twisted one way or the other; that many, when full grown, are uniformly "bottom side up"; that most leaves have peculiar enlarged cells in the epidermis which are very sensitive to moisture and dry air. These are bulliform cells, and aid leaves in closing or "rolling" in a dry time, as in case of Indian Corn.

Part II. consists of keys of analysis and descriptions of tribes and genera. The reader of the best literature on agriculture, as well as the botanist, will find much of interest in this part of the book, which contains valuable information on the history and economic properties of grasses.

Great care has been used to secure accuracy of translation, and a very complete index gives added value to the book. The impressions of the numerous excellent cuts are well taken, and the publishers' work in general is of the best quality.

W. J. B.

Notes.

The importations of fruit into England increased a little more than a million bushels in 1871 to six and a half millions in 1888.

A statue is to be erected at Prague in honor of the famous plant collector, Benedict Roezl. It will represent him seated and at work studying a plant.

It is reported in the Agricultural Department of the *Florida Times-Union* that experiments in tanning with the Mangrove have proved very successful near Fort Myers.

The *North-western Lumberman* for August 2d publishes a sketch of the life of Mr. B. E. Fernow, Chief of the Forestry Division of the Department of Agriculture, with a portrait.

"At a farm-house in Newchurch-in-Pendle," says the *Gardeners' Chronicle*, "Mushrooms grow in profusion in the various rooms on the ground floor. A gentleman visited the place last Sunday, and he found Mushrooms growing out of the chinks of the floor and also from the walls. He was allowed to take several away, one of which was eight inches across. The Vicar of Newchurch often has a dish from the farm-house." It is interesting, but melancholy, to imagine the bodily condition of the dwellers in such a house, and also the mental condition of a clergyman who can enjoy a dainty originating in such a way.

The mantel decoration by Mr. David Allen, which took the first prize at the late exhibition of the Massachusetts Horticultural Society, was composed throughout of choice plants most tastefully arranged, from the great clusters of White Agapanthus rising above masses of Maidenhair Ferns at the base, to the exquisite Croton at the summit. The hanging sprays of Lapageria, both rose colored and white, exemplified the best use which can be made of these flowers, which keep solid and fresh so long. Beautiful Orchids and Nepenthes, *Cocos Waddeliana*, variegated Alocasias, *Adiantum Farleyense* and *Asparagus plumosus* were the other materials principally used.

Among certain remarkable trees to be found in the neighborhood of Vichy, the *Revue Horticole* notes a Black Poplar (*Populus nigra*) which stands in the park, and is called "the great tree of Vichy." The trunk measures six and a half feet in diameter at three feet above the ground, and more than thirteen feet where the huge branches diverge to form a head eighty-two feet in diameter, which attains a height of nearly ninety feet. The age of the giant is supposed to be not more than eighty years. A number of other Poplars of various sorts which stand near by, with trunks from twenty-seven to forty-three inches in diameter, and from seventy to eighty feet high, with a spread of from sixty to eighty-five feet, are remarkable specimens of rapid development, as they are known to be only twenty-seven years old.

Mr. W. R. Smith, of the Botanic Gardens, Washington, says that foreigners call *Tecoma radicans* and *T. grandiflora* "Humming Bird vines" from the fact that their flowers are constantly visited by these birds. Indeed, in one of Audubon's pictures the humming bird is feeding on the nectar of one of these Trumpet-flowers, while another species of humming bird is given in connection with the other. The flowers of *T. radicans* bloom so late that its pollen is carried by the birds to the flowers of *T. grandiflora*, and out of a large number of seedlings raised from this plant by Mr. Smith every one showed traces of the blood of our native plant. Some fine flowers of *T. grandiflora*, from the Arnold Arboretum, attracted much attention at the recent exhibition of the Massachusetts Horticultural Society in Boston.

The Boston *Transcript* says: "The amount of produce a well-managed garden is capable of yielding is well shown by the following statement recently made by G. W. Hallock & Son concerning their fifty-eight acres of land near Greenpoint, Long Island, during last year: 3,750 bushels of onions and 4,500 bushels of carrots; early cabbages, 5,500 barrels; early potatoes, 2,500 bushels; strawberries, 11,000 quarts; onions from sets, 2,260 bushels; white beans, 160 bushels; carrots, 11,000 bushels; late potatoes, 450 bushels; onions from seed, 3,900 bushels; ears of corn, 2,000 bushels; Brussels sprouts, 500 bushels; potato onion sets, 10 bushels; carrot seed, 40 pounds; onion seed, 100 pounds; Brussels sprout seed, 4 pounds; cabbage seed, 2 pounds; Hungarian grass, 3 tons; cabbage plants to carry over, 250,000."

The famous "Physic Garden" at Chelsea, London, is in danger of destruction. The Society of Apothecaries, who, for more than two centuries, have maintained it, are unwilling longer to bear the expense. In accordance with the terms of the will of Sir Hans Sloane, the ground it occupies must now be offered at the same nominal rent to the Royal Society first, and then to the College of Physicians; and, if they both refuse the charge, it can then be freely disposed of by the present heir of Sir Hans, Lord Cadogan. Once a tract of small money value, it is a desirable building site, owing to the extension of the city and the construction of the Chelsea Embankment on one side and of Battersea Park on the other. But it is to be hoped, if only for sentimental reasons, that a garden of which Evelyn wrote in the seventeenth century, and which must be constantly quoted whenever the history of the introduction of foreign plants into England is touched upon, may be preserved during many generations to come.

In a recent number of the *Revue Horticole*, Monsieur Delabarrière described the great Rose-garden which he has created in the royal park at Laeken, and which is one of the most remarkable in the world. This *roseraie* is at once a garden to please the eye, and a school for the study of the plants, which already number more than 13,000. It forms a vast circle 430 feet in diameter, where sixteen circular beds are separated by as many pathways bordered by low, ornamental plants of other sorts, the beds being ten feet and the paths one and a half feet wide. In each bed there are three rows of Roses, so arranged with regard to their height and the color of their flowers that the general effect shall be agreeable to the eye. Four carriage-ways run from the circumference of the circle in curving lines to the centre, where they meet in a small open area. The ground slopes a little so that the plants are protected from the north wind, and, being commanded by higher portions of the park, the garden forms a delightful scene even from a distance, whence the beauty of the individual Roses cannot be appreciated.

Last winter there were many complaints of a failure of the crop of Spinach in New Jersey, and from what appeared to be a Fungus disease, and Professor Halsted in a recent bulletin from the experiment station of that state gives some account of his investigation of these diseases. Four species of parasitic Fungi were met with, a mildew, an anthracnose, a leaf blight and a white smut. Of these parasites the Anthracnose (*Colletotrichum Spinaceæ*) and the White Smut (*Entyloma Ellisii*) seem to be little known, and the former is probably the most destructive of all, being very contagious and so rapid in its development that healthy leaves showed newly developed disease-spots in six days after inoculation. Inasmuch as the whole Spinach-plant is prepared for the table it is difficult to apply remedies. Of course it is good practice to burn all affected parts of plants and not allow the refuse of the bed to get to the manure heap, and it would be also a good measure to change the location and soil of the beds, growing other crops in the old place for a few years. Perhaps it would be well if the soil were treated with the mixture of flowers of sulphur and air-slacked lime, and copper sulphate might be used upon the plants when young.

A correspondent of the *Gardeners' Chronicle* says with regard to *Chrysanthemum carinatum* recently exhibited at Chiswick by the Messrs. Hurst: "Some curious facts may be noted as to the form, color and movements of the florets. The outermost series are arranged in two or three rows of strap-shaped female florets. Within these come two or three rows of purple florets, half the length of the yellow ones and intermediate in form as in position between the true ray-florets and those of the disc, less regularly tubular than the one, less irregularly ligular than the other and female. The disc is made up, as usual, of very numerous purple, regularly tubular, hermaphrodite flowers. The fruits are deeply winged in all cases, whence the name, but while those of the two outer series have the two wings unequal in size, the wings of the innermost series of disc-florets are regular or nearly so. But these structural peculiarities are not so conspicuous or so interesting as the movements of the yellow ray-florets. In full sunshine these spread horizontally, so that the purple disc is shown surrounded by a golden aureole. As the sun goes down, down go the yellow florets too; the consequence is that the purple disc alone is visible and the yellow florets are hardly to be seen unless specially looked for. This happens when the flowers are cut and placed in water. We have had some on our study table, and have been interested to see in the morning one flower, in the evening apparently another."

Mr. Henry Bennet, widely known as the producer of seedling Roses, died on the 12th of August, at Shepperton, England. Mr. Bennet was engaged in agriculture during his early years, and in his farm practice he brought into use the same scientific precision and clear perception which he afterward employed in raising Roses. He exercised great care in selecting varieties for crossing, kept accurate records, and used a system in interbreeding which produced such fine varieties as Mrs. John Laing, Her Majesty, Princess Beatrice, Puritan, Captain Hayward and many others. There is little doubt that many other seedlings of his rearing will yet be heard from. Mr. Bennet was justly esteemed for the unassuming frankness of his disposition.